CLAIMS

1. An angular velocity sensor comprising:

a substrate made of single crystal silicon and having a tuning folk shape, the substrate including

a plurality of arms extending in parallel with each other, and

a joint section for connecting respecting ends of the arms with each other;

a barrier layer provided on each of the plurality of arms of the substrate, the barrier layer containing silicon oxide;

a first adhesion layer provided on the barrier layer, the first adhesion layer containing titanium;

a first electrode layer provided on the first adhesion layer, the first electrode layer containing at least one of titanium and titanium oxide;

an orientation control layer provided on the first electrode layer;

a piezoelectric layer provided on the orientation control layer;

a second adhesion layer provided on the piezoelectric layer; and

a second electrode layer provided on the second adhesion layer.

2. The angular velocity sensor of claim 1, wherein the orientation control layer comprises dielectric oxide material containing Pb and Ti.

3. The angular velocity sensor of claim 1, wherein the orientation control layer comprises lead titanate containing at least one of La and Mg.

4. The angular velocity sensor of claim 1, wherein the piezoelectric layer comprises slead zirconate titanate.

5. A method of manufacturing an angular velocity sensor, comprising:

providing a substrate made of single crystal silicon and having a tuning folk shape, the substrate including a plurality of arms and a joint section for connecting respecting ends of the arms with each other, the plurality of arms extending in parallel with each other;

forming a barrier layer containing silicon oxide by oxidizing a surface of the plurality of the arms of the substrate;

forming a first adhesion layer containing titanium on the barrier layer by sputtering;

forming a first electrode layer containing platinum and at least one of titanium and titanium oxide on the first adhesion layer by sputtering;

forming an orientation control layer on the first electrode layer by sputtering;

forming a piezoelectric layer on the orientation control layer by sputtering;

forming a second adhesion layer on the piezoelectric layer by sputtering or vacuum deposition; and

forming a second electrode layer on the second adhesion layer by sputtering or vacuum deposition.

6. The method of claim 5, wherein said forming the barrier layer comprises thermally oxidizing a surface of the substrate.

7. The method of claim 5, wherein the orientation control layer comprises dielectric oxide material containing Pb and Ti.

8. The method of claim 5, wherein the orientation control layer comprises lead titanate containing at least one of La and Mg.

9. The method of claim 5, wherein the piezoelectric layer comprises lead zirconate titanate.